UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,621	02/18/2004	Zhiguo Xiao	CCPIT-7	5095

1473 7590 01/20/2006

FISH & NEAVE IP GROUP
ROPES & GRAY LLP
1251 AVENUE OF THE AMERICAS FL C3
NEW YORK, NY 10020-1105

EXAMINER	
KOSLOW, CAROL M	

ART UNIT	PAPER NUMBER
1755	

DATE MAILED: 01/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/782,621	XIAO ET AL.	
	Examiner	Art Unit	
	C. Melissa Koslow	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,12 and 13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,12 and 13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

This action is in response to applicants' amendment of 8 December 2005. The amendment to the specification has overcome the objection to the specification and the objection to the disclosure with respect to "glass metal". Applicants' arguments with respect to the definition of "clarified" have overcome the objection to the disclosure. The amendments to the claims have overcome the objections to the claims, the 35 USC 112 rejections over claims 10-14, the 35 USC 112, second paragraph rejection of claim 1 with respect to "conventional borate glass", the 35 USC 102 rejection, the 35 USC 103 rejections over canceled claims 9, 11, 14 and 15 and the 35 USC 103 rejections over JP 10-273657, JP 09-77533 and U.S. patent 6,197,712 in view of U.S. patents 5,839,718; 6,071,432; 6,617,781; 5,424,006 and 6,431,236. Applicant's arguments with respect to the rejection over U.S. patent 4,963,441 in view of U.S. patent 6,071,432 have been fully considered but they are not persuasive.

Claims 1, 3 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite since it is unclear what are the compositions encompassed by the phrase "common silicate glass". Claim 3 recites the limitation "the main chemical formula". There is insufficient antecedent basis for this limitation in the claim or in claims 2 or 1. Claim 12 recites the limitation "the melted matrix glass". There is insufficient antecedent basis for this limitation in the claim.

The amendments to the claims did not overcome the rejections over claims 1 and 3.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,963,441 in view of U.S. patent 6,071,432.

U.S. patent 4,963,441 teaches a light-storage glaze comprising 20-80 wt% of a sulfide type light-storage luminescent material having a particle size of about 5-500 microns and 80-20 wt% of a low melting point glass whose composition overlap that claimed. The taught light-storage luminescent material particle size overlaps the claimed range since "about 500" includes 550. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The reference suggests the claimed glass.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,963,441 as applied to claim 1 above, and further in view of U.S. patent 6,071,432.

As stated above, U.S. patent 4,963,441 suggests the claimed glass. U.S. patent 4,963,441 teaches the light-storage luminescent material can be any known sulfide type light-storage luminescent material. U.S. patent 6,071,432 teaches SrS:xEu,yM, where M can be Dy, Er or Tm, x is 0.0001-0.02 and y is 0.00005-0.05, which is a sulfide type light-storage luminescent material. One of ordinary skill in the art would have found it obvious to use the sulfide type light-storage luminescent material of U.S. patent 6,071,432 as the sulfide type light-storage luminescent material in the glaze of U.S. patent 4,963,441. The references suggest the claimed glass.

Applicants' amendment did not overcome the rejection since the taught upper value of "about 500" include the claimed value of 550. Accordingly, the rejections are maintained.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,963,441 as applied to claim 1 above, and further in view of U.S. patent 5,839,718.

As stated above, U.S. patent 4,963,441 suggests the claimed glass. The taught light-storage luminescent material are any sulfide type light-storage luminescent materials. U.S. patent 5,839,718 teaches replacing sulfide type light-storage luminescent materials with silicate phosphors having the formula of claim 3, which falls within that of claim 2, because the taught phosphors are more chemically stable, have longer afterglow, have a cleaner emission color and are non-toxic. Column 5, line 51 teaches the silicate phosphors mixed into a glass matrix. Therefore one of ordinary skill in the art would have found it obvious to replace the taught sulfide type light-storage luminescent materials in the glass of U.S. patent 4,963,441 with the silicate phosphors of U.S. patent 5,839,718 for the reasons given in U.S. patent 5,839,718. The references suggest the claimed glass.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,963,441 as applied to claim 1 above, and further in view of U.S. patent 6,617,781.

As stated above, U.S. patent 4,963,441 suggests the claimed glass. The taught light-storage luminescent material are any sulfide type light-storage luminescent materials. If one of ordinary skill in the art wanted a red light emitting glass, they would choose known red light emitting sulfide phosphors, such as (Zn,Cd)S:Cu, which is toxic, or SrS:Eu based phosphors, which exhibit extreme chemical instability. U.S. patent 6,617,781 teaches a red emitting light-storage luminescent materials, which has the formula of claim 5, and none of the problems of the phosphors discussed above. One of ordinary skill in the art would have found it obvious to use

the phosphor of U.S. patent 6,617,781 in place of the sulfide phosphor in the glass of U.S. patent 4,963,441 to form a red light emitting glass. The references suggest the claimed glass.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,963,441 as applied to claim 1 above, and further in view of U.S. patent 5,424,006.

As stated above, U.S. patent 4,963,441 suggests the claimed glass. The taught light-storage luminescent material are any sulfide type light-storage luminescent materials. U.S. patent 5,424,006 teaches replacing sulfide type light-storage luminescent materials with aluminate phosphors having the formula of claim 7, which falls within that of claim 6, because they have a longer afterglow, more chemically stable and higher photoresistance than sulfide type light-storage luminescent materials. Column 21, lines 56-57 teach the phosphors having the formula of claim 7 can be mixed into a glass matrix. Therefore one of ordinary skill in the art would have found it obvious to replace the taught sulfide type light-storage luminescent materials in the glass of U.S. patent 4,963,441 with the aluminate phosphors of U.S. patent 5,424,006 for the reasons given in U.S. patent 5,424,006. The references suggest the claimed glass.

Claims 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,963,441 as applied to claim 1 above, and further in view of U.S. patents 6,431,236 and 5,424,006.

As stated above, U.S. patent 4,963,441 suggests the claimed glass. The taught light-storage luminescent material are any sulfide type light-storage luminescent materials. U.S. patent 5,424,006 teaches replacing sulfide type light-storage luminescent materials with aluminate phosphors having the formula of claim which have a longer afterglow, are more chemically stable and higher photoresistance than sulfide type light-storage luminescent materials. U.S.

patent 6,431,236 teaches the aluminate light-storage luminescent material having the formula of claim 8 is functionally equivalent to the aluminate material of claim 7, which suggests it has the same benefits as the phosphor taught in U.S. patent 5,424,006. Therefore one of ordinary skill in the art would have found it obvious to replace the taught sulfide type light-storage luminescent materials in the glass of U.S. patent 4,963,441 with the aluminate phosphor having the formula of claim 8, for the reasons given in U.S. patent 5,424,006. The references suggest the claimed glass.

Claims 1, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2004-10409.

This reference teaches a luminous glass comprising a light-storage self-luminescent material having a size in the range of 0.1-1 mesh in a glass matrix. This glass is formed by melting a glass, adding the light-storage self-luminescent material and glass-blowing the molten glass at 800°C, which overlaps the claimed range. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). While the glass composition is not specified, it is clear and obvious that it can be any glass commonly produced by glass blowing and which can be colored with a light-storage self-luminescent material, such as a common silicate glass. The taught mesh size range appears to correspond to a inch scale mesh. Thus the taught size range of 0.1-1 mesh appears means the luminescent material has a particle size in the range of 0.01-1 inch, or 2.54-25.4 mm, which overlaps the claimed range. While the reference does not teach the amount of luminescent material, it is clear that the amount is that

effective to form a luminous glass. It is known in the art, as shown by the cited references, that this effective amount is 40 wt% or less, which overlaps the claimed range. The reference suggests the claimed glass and process.

Claims 2-5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2004-10409 as applied to claim 1 above, and further in view of U.S. patents 5,839,718; 6,431,236; 6,617,781 and 6,071,432.

As stated above, JP 2004-10409 suggests the claimed glass. The light-storage luminescent material in JP 2004-10409 emits green light. If one of ordinary skill in the art wish for the glass to emit a different color, one would have found it obvious to replace the taught green light emitting material with any other color emitting light-storage luminescent materials, such as with the red, blue-green or blue light emitting phosphors taught U.S. patents 5,839,718; 6,617,781; 6,431,236 and 6,071,432 which have the formulas of the materials claimed in claims 2-5. The references suggest the claimed glass.

Claim 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2004-10409 as applied to claim 1 above, and further in view of U.S. patent 5,424,006.

As stated above, JP 2004-10409 suggests the claimed glass. The light-storage luminescent material in JP 2004-10409 emits green light, but it is not defined. One of ordinary skill in the art would have found it obvious to use the green light emitting aluminate light-storage luminescent material of U.S. patent 5,424,006, which have the formulas of claims 6 and 7, since they have a long afterglow, are more chemically stable and have higher photoresistance. The references suggest the claimed glass.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk
January 13, 2006

C. Melissa Koslow
Primary Examiner
Tech. Center 1700